

WHAT IS CLAIMED IS:

1. A gantry system comprising:
a pair of rails;
supports for supporting the rails in a spaced-apart relationship; and
a bridge spanning between the rail and moveable on the rails, wherein the bridge comprises a perimeter wall formed of overlapping segments with damping material disposed therebetween.
2. The gantry system of claim 1 wherein the bridge further comprises a rigid plate and the perimeter wall comprises a U-shaped housing fastened to the rigid plate.
3. The gantry system of claim 2 and further comprising linear bearings that support a mast, the linear bearings being secured to the rigid plate.
4. The gantry system of claim 3 and further comprising a plurality of fasteners, each fastener passing through apertures of the rigid plate to secure the linear bearings and the U-shaped housing together on opposite sides of the rigid plate.
5. The gantry system of claim 3 and further comprising a plurality of flanges extending from the U-

shaped housing for fastening the U-shaped housing to the rigid plate.

6. The gantry system of claim 5 wherein at least one of the flanges is adapted to fasten to a major surface of the rigid plate.

7. The gantry system of claim 6 and further comprising a plurality of fasteners, each fastener passing through apertures of the rigid plate to secure the linear bearings and the U-shaped housing together on opposite sides of the rigid plate.

8. The gantry system of claim 1 wherein the damping material comprises a viscoelastic damping material.

9. The gantry system of claim 8 wherein opposed major surfaces of the viscoelastic damping material are joined to each respective segment.

10. The gantry system of claim 1 wherein the bridge further comprises overtravel stops limiting relative movement of overlapping segments.

11. The gantry system of claim 10 wherein the overtravel stops comprises a rod secured to a segment secured to one of the overlapping segments and extending through a clearance aperture provided in said overlapping segment.

12. A gantry support structure comprising:

a damping structure comprising a plurality of overlapping segments forming at least a portion of a housing and having a plurality of fastening regions spaced apart about the housing with damping material disposed between the segments.

13. The gantry support structure of claim 12 and further comprising a rigid plate and wherein the housing is U-shaped.

14. The gantry support structure of claim 13 and further comprising a plurality of flanges extending from the housing for fastening the housing to the rigid plate.

15. The gantry support structure of claim 14 wherein at least one of the flanges is adapted to fasten to a major surface of the rigid plate.

16. The gantry support structure of claim 12 wherein the damping material comprises a viscoelastic damping material.

17. The gantry support structure of claim 16 wherein opposed major surfaces of the viscoelastic damping material are joined to each respective segment.

18. The gantry support structure of claim 13 and further comprising linear bearings that support a an element moveable relative to the support structure, the linear bearings being secured to the rigid plate.

19. The gantry support structure of claim 18 and further comprising a plurality of fasteners, each fastener passing through apertures of the rigid plate to secure the linear bearings and the U-shaped housing together on opposite sides of the rigid plate.

20. The gantry support structure of claim 13 wherein the housing further comprises overtravel stops limiting relative movement of overlapping segments.

21. The gantry support structure of claim 20 wherein the overtravel stops comprise a rod secured to a segment secured to one of the overlapping segments and extending through a clearance aperture provided in said overlapping segment.

22. A telescoping mast comprising:

a first longitudinal tube section and a moveable longitudinal tube section moveable relative to the first longitudinal tube section, wherein at least one of the first longitudinal tube section and the moveable longitudinal tube section include a

perimeter wall formed of overlapping wall plates with a damping material disposed therebetween.

23. The telescoping mast of claim 22 wherein the damping material comprises a viscoelastic damping material.

24. The telescoping mast of claim 23 wherein opposed major surfaces of the viscoelastic damping material are adhesively joined to each respective wall plate.

25. The telescoping mast of claim 24 wherein each of the longitudinal tube sections comprise a rigid plate and a plurality of wall plates fastened together and to the rigid plate with a plurality of fasteners.

26. The telescoping mast of claim 22 and further comprising overtravel stops limiting relative movement of overlapping wall plates.

27. The telescoping mast of claim 26 wherein the overtravel stops comprise a rod secured to a plate secured to one of the overlapping plates and extending through a clearance aperture provided in said overlapping plate.

28. The telescoping mast of claim 22 wherein said at least one of the longitudinal tube section comprises

first and second wall plates defining first and second spaced apart longitudinal edges, a rigid plate joined to the spaced apart longitudinal edges, a first L-shaped wall plate fastened to the first wall plate with damping material disposed therebetween, a third wall plate fastened with bolts to the first L-shaped wall plate and fastened to a second L-shaped wall plate with damping material disposed therebetween, a fourth wall plate fastened to the second L-shaped wall plate with bolts and fastened to the second wall plate with damping material disposed therebetween.

29. The telescoping mast of claim 22 wherein said at least one of the longitudinal tube section comprises first and second wall plates defining first and second spaced apart longitudinal edges, a rigid plate joined to the spaced apart longitudinal edges, a third wall plate fastened to first and second L-shaped wall plates with damping material disposed therebetween, a fourth wall plate fastened to the first wall plate and the first L-shaped wall plate with damping material disposed, and a fifth wall plate fastened to the second wall plate and the second L-shaped wall plate with damping material disposed therebetween.

30. The telescoping mast of claim 22 wherein said at one of the longitudinal tube section comprises a U-shaped housing having a plurality of sides and a plurality of corners, a rigid plate joined to the U-

shaped housing, a plurality of regions placed around the U-shaped housing and spaced apart at a location proximate a middle of any of the plurality of side walls and proximate any of the plurality of corners.

31. A fixture for assembling segmented panels, the fixture comprising:

a base assembly having an elongated support surface;

an elongated reaction structure held fixed relative to the support surface; and

an elongated inflatable member disposed between the support surface and the reaction structure along the support surface for applying a force toward the support surface.

32. The fixture of claim 31 wherein the member comprises an elongated tube.

33. The fixture of claim 31 and further comprising a compressor coupleable to the tube to inflate the tube with a gas.

34. The fixture of claim 31 and further comprising a plurality of upstanding legs removably coupled to the elongated reaction structure to support the elongated reaction structure.

35. The fixture of claim 31 wherein the base assembly includes a reference surface on a side of the base assembly for defining a distance of assembly of the segmented panels.

36. The fixture of claim 35 wherein the base assembly includes a clamp to hold the segmented panel against the reference surface.

37. The fixture of claim 36 and further comprising a plurality of upstanding legs removably coupled to the elongated reaction structure to support the elongated reaction structure.

38. The fixture of claim 37 wherein a plurality of the legs each include a clamp to hold the segmented panel against the reference surface.

39. A method for assembling elongated segmented panels comprising:

placing an elongated panel assembly comprising two elongated panels and a bonding material between the elongated panels on an elongated support surface having a reaction surface opposite the elongated support surface;
disposing a inflatable member between the panel assembly and the reaction surface; and

pressurizing the inflatable member to obtain a uniform force along the elongated panel assembly.

40. The method of claim 39 wherein pressurizing the inflatable member includes inflating the inflatable member with a gas.

41. The method of claim 40 wherein the inflatable member comprises an elongated tube.

42. A gantry system comprising:
spaced apart guide rails;
a mast; and
a bridge extending between and supported on the guide rails, the bridge moveable along the guide rails, the bridge comprising a plate with a mounting surface for supporting the mast and a segmented assembly joined to the plate to form an enclosed perimeter with the plate without deforming the mounting surface when the segmented assembly is joined to the plate.

43. The gantry system of claim 42 wherein the segmented assembly is U-shaped with spaced apart sides having longitudinal edges joined to the plate, each of the edges being adjusted to correspond to a surface of

the plate to which the segmented assembly is secured upon.

44. The gantry system of claim 43 wherein each of the sides include overlapping plates.

45. The gantry system of claim 44 wherein a damping material joins the overlapping plates together.

46. The gantry system of claim 43 wherein the longitudinal edges include flanges extending perpendicularly from each of the corresponding sides, the flanges secured to the plate.

47. The gantry system of claim 46 and further comprising guides joined to the mounting surface for guiding the mast along the plate, wherein fasteners securing the guides to the plate further secure the segmented assembly to the plate.

48. The gantry system of claim 42 and further comprising separate fasteners securing the segmented assembly to the plate.

49. A method for making a bridge for a gantry system, the method comprising:

obtaining a plate having a mounting surface for supporting a mast; and

securing a segmented assembly to the plate to form an enclosed perimeter with the plate without deforming the mounting surface when the segmented assembly is joined to the plate.

50. The method of claim 49 wherein securing includes using a plurality of separate fasteners.

51. The method of claim 49 and further comprising:
forming the segmented assembly to be U-shaped with spaced apart sides and longitudinal edges, each of the edges being adjusted to correspond to a surface of the plate to which the segmented assembly is secured upon.

52. The method of claim 51 wherein forming includes overlapping plates to form each of the sides.